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ABSTRACT

The relationship between classroom characteristics and student perceptions of differential teacher treatment in elementary classrooms was examined. Teacher treatment was found to be unrelated to openness of classroom structure. In all classrooms, teachers gave more negative feedback, direction, more orientation to work, and rules to low than to high achievers. Teachers showed greater expectations, and presented more opportunities and choices for high achievers. Teachers varied in the amount of perceived differential treatment shown with both high and low achievers. They also varied in both the amount and direction of supportive help given to high and low achievers. (Author/JD)

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"Everyone's Smart in Our Class:"

Relationships between Classroom Characteristics and Perceived Differential Teacher Treatment

Hermine H. Marshall, Rhona S. Weinstein, Susan E. Middlestadt, and Karen A. Brattesani

ABSTRACT

This study examines the relationship between classroom characteristics and student perceptions of differential teacher treatment. 234 4th, 5th, and 6th graders from 16 classrooms ranging from traditional to open structure completed the Teacher Treatment Inventory. Teachers completed the Open Education Teacher Questionnaire (Walberg & Thomas, 1972). Results indicate that perceived differential teacher treatment was unrelated to openness of classroom structure. In all classrooms, teachers were perceived as giving more negative feedback and direction as well as more orientation to work and rules to low than to high achievers. In contrast, teachers were perceived as showing greater expectations, opportunities, and choice for high than for low achievers. However, teachers appear to vary in the amount of perceived differential treatment shown with high and low achievers. Furthermore, teachers varied in both the amount and the direction of supportive help perceived as given to high and low achievers, with some teachers perceived as giving more supportive help to low achievers, other teachers as giving more help to high achievers, and a few teachers as showing no difference in help given. Problems in assessing classroom openness were noted. Questions were raised regarding implications for classroom teachers.

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"Everyone's Smart in Our Class": Relationships between Classroom Characteristics and Perceived Differential Teacher Treatment

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In "Student Perceptions of Differential Teacher Treatment," Weinstein, Middlestadt, Brattesani, and Marshall (Note 1) have presented the rationale for studying student perceptions of differential teacher treatment as mediators of the expectancy effect. Student perceptions of teachers' interactions with high and low achieving male and female students, together with the role played by individual differences in the perceiver (achievement level and sex), have been described.

The focus of this paper is on student perceptions of teacher treatment as they occur in the context of the classroom ecology. Of particular interest is the effect differences in the openness of classroom structure may have on how students perceive teacher behaviors which may transmit expectancy cues. Until recently (Blumenfeld et al, 1979), the influence of classroom structure on the mediation of teacher expectancy cues has not been explored. As expectancy research has ignored classroom structure variables, so too has the field of classroom structure research disregarded ways in which differences in classroom structure may influence the transmission of achievement expectations. Yet important differences exist between open and traditional classrooms which have implications for teacher expectations and for learner perceptions of these expectations.

In open types of classrooms, both the nature and the context of evaluation are different (e.g. Bussis & Chittenden, 1970; Marshall, 1972; Spodek & Walberg, 1975). Evaluation in open settings is often based on a broader set of criteria over multiple activities; progress is often individualized rather than reviewed relative to other classmates; and both teacher feedback and pupils' actual task completion rates tend to be more private events. In addition, teacher dominance over classroom processes is reduced and students tend to take more responsibility for decision-making. Thus, the potency of teacher cues may be lessened and/or teacher cues about expected performance in open settings may actually differ (e.g. Blumenfeld, et al., 1979).

A second, but related, characteristic of the classroom which may affect whether and how differential treatment is perceived by students is the spread of achievement within a classroom. In traditional classrooms that are more likely to focus on single ability status systems as the basis for evaluation and feedback, the effect of the variability of achievement within a classroom may be more apparent. In contrast, since cross-age grouping

and multigradedness are often basic to the philosophy of open classrooms, (e.g. Featherstone, 1967), classrooms implementing an open structure may be operating within a framework which capitalizes on the positive aspects of a wider range of abilities.

Because open classrooms may function so as to diminish the effect of teacher expectations, the primary objective of the study reported herein is to explore the relationship between openness of classroom structure and student perceptions of differential teacher treatment. The specific hypothesis to be investigated is that students in open classrooms will perceive less differential teacher treatment than those in traditional classrooms.

Method

Subjects

Sixteen classrooms in four urban, ethnically mixed schools of varying socioeconomic levels were selected as examples of a range of open to traditionally structured classrooms. District administrators nominated two schools as having open classrooms and two as having traditional classrooms. The type of classroom structure in each classroom was further described by the school principal. Principals nominated eight classrooms as open and six as self-contained traditionally structured. Two teachers about whom the principal was uncertain were conservatively placed in the traditional category. The fourteen female and two male teachers had been teaching for an average of 9.7 years, ranging from 2 to 18 years.

Each classroom included fourth graders. Three classrooms included second, third, and fourth graders, one classroom included fourth and fifth graders, and five classrooms included fourth, fifth, and sixth graders. Eight of the nine multigraded classrooms were nominated as open.

Of the 418 fourth, fifth, and sixth graders in the 16 classrooms, the 234 students who returned parental permission slips served as subjects. One hundred thirty-two fourth graders were interviewed.

Measures*

Open Education Teacher Questionnaire. In addition to administrator nomination, classroom structure was assessed by the Open Education Teacher Questionnaire (OETQ) (Walberg & Thomas, 1972). This instrument consists

* The study reported in this paper is part of a larger multi-method research project designed to investigate the role of student perceptions in mediating the effects of hypothesized differential teacher treatment on achievement. Other measures not discussed here included self-expectations for

of 50 items derived from a review of the literature on the philosophy underlying open education. A revised set of instructions suggested by Scaley (1976) was used to diminish the likelihood of a "social desirability" set in responding: Teachers were asked to indicate both the degree to which they considered each of the 50 items to be "important" and the extent to which they had been able to "implement" each item in the classroom. (Original instructions asked teachers to estimate the extent to which the statement was true of their classrooms.)

Teacher Treatment Inventory. Student perceptions were measured by the Teacher Treatment Inventory (TTI) developed by Weinstein & Middlestadt (1979) and described more fully in the paper by Weinstein, Middlestadt, Brattesani, and Marshall (Note 1) in this session. Students were asked to rate 44 teacher behaviors towards one of four hypothetical high achieving or low achieving male or female "target" students on one of four forms (High Male, Low Male, High Female, Low Female). Students responded to each item by marking one of four circles of decreasing size, labeled "Always," "Often," "Sometimes," and "Never." Types of teacher behavior include (1) teacher support, (2) teacher attention, (3) teacher expectations, (4) teacher feedback, (5) teacher questions, (6) variability of activities, (7) task orientation, and (8) teacher vs. student direction.

Achievement Measures. Scores on the CTBS Reading and Math Achievement Tests were collected for Spring 1978 and 1979. In some cases, scores were missing due to student absence or transfer from another district.

Supplementary Information. Among the other measures utilized in this study were semi-structured interviews with a subsample of approximately 8 students from each classroom (N=132). These interviews were developed (Weinstein & Middlestadt, Note 2) to examine children's beliefs about (1) factors influencing their learning about achievement status in the classroom; (2) the stability of smartness; (3) the causation of smartness; (4) the meaning of smartness to them and--based on their own inferences--to teachers, parents, and peers; (5) characteristics of smart and "less smart" boys and girls; (6) consequences of smartness in terms of teacher and peer treatment; and (7) strategies teachers should use. The interviews were recorded and transcribed. The transcribed interviews are in the process of being systematically coded to investigate students' perceptions

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* achievement (Nicholls, 1976) in reading, mathematics, and overall schoolwork; and perceived competence in four areas (Harter, 1978); and for teachers, a comparable rating of the expected achievement of all the students in the class.

of differential teacher treatment as ascertained in this more open-ended method as well as the meaning and consequences of smartness. The results of this aspect of our study will be more fully reported at a later date.

Procedures

Teachers completed the Open Education Teacher Questionnaire individually during late April. Students were administered the Teacher Treatment Inventory in small group sessions in early May.

To maximize the number of N available within classrooms for studying the degree of agreement between student perceptions, only two of the four forms of the TTI were assigned per classroom. Because our primary interest concerns teacher treatment of high and low achievers, the sex of the target child on the form was varied across classrooms. Hence, each classroom was assigned to either the male or the female form. Since there were two male teachers in our sample, one class taught by a male teacher was assigned the male form and the other the female form. The remainder of the classrooms were randomly assigned within schools to male or female conditions so that half of the classrooms in each school received each condition.

Within each classroom, half of the males and half of the females were assigned to either the high achieving or low achieving target form according to a randomized blocking procedure. The students within each classroom were ranked separately by sex on their 1978 Reading Achievement Scores. Students with adjacent rankings were assigned to blocks of two students. One student from each block was randomly assigned to the "High" form and one to the "Low" form. Students for whom achievement data were missing were blocked together in pairs and assigned forms in the same manner. Consequently, approximately half of the students in each class received the "High" form and half received the "Low" form. To alleviate problems due to the wide range of reading levels, a staff member read the instructions and all of the items to the students.

Two weeks after the initial data collection from students, individual interviews were conducted with a subset of high and low achieving male and female fourth graders from each classroom.

Results

A preliminary analysis of the data was conducted to determine the relationship between differential teacher treatment as measured by the TTI and classroom structure.

As described by Weinstein et al. (Note 1), factor analysis of the TTI was carried out utilizing a varimax rotated four factor solution of the summed within group covariance matrix (Tucker, 1974). The four scales based on this solution are: Scale 1- Supportive Help, Scale 2- Negative Feedback and Teacher Direction, Scale 3- Work and Rule Orientation, and Scale 4- High Expectations, Opportunity and Choice.

Relationships between perceived teacher treatment and classroom structure were explored in two ways. First, the relationships between classroom difference variables and differential teacher treatment as measured by the four TTI Scales were examined. Second, differences among classrooms in the total amount of perceived differentiation shown to high and low achievers were explored.

Classroom Variables and Differential Teacher Treatment

In analyzing the relationships between classroom differences and differential teacher treatment, focus is on both (1) the amount of the teacher behaviors perceived to be accorded to all students in different classrooms and (2) teacher behaviors perceived to be differentially accorded to high and low achieving students.

Classroom Structure. Classroom structure was determined by two methods: (1) principals' nominations and (2) the OETQ "Importance" and "Extent Implemented" total scores. Analyses of variance indicated that the teachers nominated as open differed significantly from those nominated as traditional in the Importance OETQ (F (14,1)=6.03, $p < .05$) but did not differ on the Extent Implemented OETQ (F (14,1)=2.17, n.s.). Mean scores, standard deviations, and ranges are shown in Table 1. Openness of classroom structure as determined by nomination was significantly correlated with that determined by the Importance OETQ ($r = .55$, $p < .05$), while that measured by nomination--although positive--was not significantly correlated with the Extent Implemented OETQ ($r = .37$). The Importance and Extent Implemented scores were not significantly correlated ($r = .37$). The correspondence between the nominations and the Importance scores--contrasted to that between the nominations and the Extent Implemented scores--may reflect administrators' greater awareness of what

teachers believe is important rather than what is actually happening in their classrooms.

Apparently, most of these teachers are aware of the difference between what they believe is important in structuring a classroom and what they are actually able to implement. Thirteen teachers responded that their actual implementation of items was less open than their beliefs about the importance of these behaviors, averaging a decrease of 16 points. Two saw it as more open, averaging an increase of 6 points. One teacher's total score remained the same for both the Importance and Extent Implemented OETQ.

Because the Extent Implemented OETQ was not significantly correlated with either the nominations or the Importance OETQ, some questions may be raised about whether the groups of teachers nominated as open and traditional are actually implementing the type of structure for which they were nominated. Due to these discrepancies, a finer means of discriminating classroom structure was sought. In an attempt to utilize as much information as possible in classifying classrooms as open or traditional, those teachers who were nominated as open and whose scores on both the Importance and the Extent Implemented OETQ fell into the top half of the rank order were considered to be open. Five teachers were considered open according to these criteria. Those who were nominated as traditional and whose scores on both the Importance and Extent Implemented OETQ fell on the lower half of the rank order were considered traditional. Six teachers were considered traditional according to these criteria. The remaining five teachers were neither clearly open nor clearly traditional according to these criteria and were considered mixed.

The relationship betweenopenness of classroom structure and differential teacher treatment was analyzed first using Nomination and then using type of classroom structure as defined by the Trichotomization of classrooms into 1-open, 2- traditional and 3-mixed. It should be noted, however, that the group of teachers labeled as mixed should not necessarily be considered on a continuum between open and traditonal teachers.

Nomination as Open or Traditional and Teacher Treatment. Three factor ANOVAs were conducted to investigate the relationships of Nomination (Open vs. Traditional), Ability of Target (High vs. Low) and Sex of Target (Male vs. Female) with student perceptions of Teacher Behavior. Main effects for Nomination were found on Scales 1 and 2. Means, standard deviations and F values are shown in Table 2. Teachers nominated as traditional were perceived

as giving both more supportive help, and more negative feedback and direction than those nominated as open. The latter finding is consistent with both those of Blumenfeld et al. (1979) who found that traditional teachers gave negative evaluations (in public) twice as often as open teachers, and those of Solomon and Kendall (1975) who found that teachers in traditional classrooms gave more criticism than those in open classrooms.

Main effects for Ability of Target were also found on Scale 1, ($F(1,226)=2.94$, $p<.10$; Scale 2, $F(1,226)=66.77$, $p<.001$; Scale 3, $F(1,226)=48.50$, $p<.001$; and Scale 4, $F(1,226)=103.72$, $p<.001$. For Scales 1, 2 and 3, low achievers were perceived as receiving more supportive help, more negative feedback and directions, and more work and rule orientation than were high achievers--although the effect for Scale 1 was significant at $p<.10$. For Scale 4, high achievers were perceived as receiving higher expectations and more opportunities and choice than were low achievers. The main effects for ability of target were basically replicated in the subsequent analyses. Because these main effects for ability of target are discussed in Weinstein et al. (Note 1), they will not be elaborated further here.

No significant interactions were found, however, between nomination and ability of target, suggesting that openness of classroom structure as judged by school administrators was not related to the amount of differential teacher treatment of high and low achievers. The only significant interactions concerning nomination were for Nomination X Sex of Target on Scale 3. (See Table 3) Teachers nominated as open were perceived as giving more work and rule emphasis to males, whereas those nominated as traditional were perceived as giving somewhat more of these behaviors to females.

No significant three-way interactions were found.

Trichotomization and Teacher Treatment. In similar three-factor ANOVAs with trichotomization of classroom structure as the third predictor variable, significant main effect of Trichotomization were also found on Scale 1 and Scale 2. Means, standard deviations, and F values are presented in Table 2. Planned comparisons* revealed that teachers in traditional classrooms were perceived as displaying more supportive help than those in open classrooms ($F=8.88$, $p<.01$) or in mixed classrooms ($F=6.17$, $p<.05$). In addition, teachers in open classrooms were perceived as giving less negative feedback and fewer directions than teachers in traditional classrooms ($F=4.17$, $p<.05$) or teachers in mixed classrooms ($F=5.26$, $p<.05$).

* Both planned and post hoc comparisons were calculated with Fisher's Least Significant Difference test (Winer, 1971). This test requires that multiple comparisons on cell means be limited to treatment effects for which the omnibus F is significant. Due to unequal sample sizes within cells, the harmonic

Trichotomization X Ability of Target interactions were significant for Scales 1, 2, and 4. Means, standard deviations and F values are shown in Table 4. Planned comparisons of the Trichotomization X Ability of Target interactions comparing only open and traditional classrooms showed no significant effects on the three scales ($F < 1$ in each case). Thus, teachers in open and traditional classrooms were not perceived as differing in the amount of differential supportive help, negative feedback and teacher direction, or high expectations, opportunities and choice accorded high vs. low achievers. Post hoc comparisons were then calculated to locate the Trichotomization X Ability of Target interaction using weighted cell means to compare mixed classrooms with the other types of classrooms on the amount of differential treatment given to high and low achievers. These analyses suggest that teachers in mixed classrooms showed greater differentiation in their treatment of highs and lows than did the other types of teachers on two scales ($F = 15.08$, $p < .001$; $F = 9.43$, $p < .01$ for Scales 2 and 4).

Analyses of the simple effects of Ability of Target within each type of classroom showed that teachers in traditional classrooms were perceived as giving more help to low than high achievers ($F = 6.05$, $p < .05$), whereas students perceived no difference in the amount of help given to high and low achievers in open classrooms ($F = 1.74$, n.s.) nor in mixed classrooms ($F < 1$). A post hoc contrast comparing traditional classrooms to the other types of classrooms in the amount of help given to low achievers showed that teachers in traditional classrooms are perceived as giving more help to low achievers than are teachers in the other two groups ($F = 12.24$, $p < .001$). The amount of help perceived given to high achievers by teachers in open classrooms did not differ from that perceived given by teachers in the other two groups ($F = 2.80$, n.s.).

Planned comparisons indicated that teachers within each type of classroom were perceived as giving more directions and negative feedback to low achievers ($F = 9.43$, $p < .01$; $F = 10.57$, $p < .01$; $F = 49.61$, $p < .001$, respectively). A post hoc comparison of mixed classrooms with open and traditional classrooms in the amount of teacher direction and negative feedback given to low achievers suggests that teachers in mixed classrooms were perceived as using more of these behaviors with lows than were teachers in open and traditional classrooms ($F = 11.48$. $p < .001$).

Similarly, teachers in open, traditional, and mixed type classrooms were perceived as showing greater expectations, opportunities and choice for high achievers than for low achievers ($F = 28.12$, $p < .001$; $F = 17.19$, $p < .001$; $F = 64.03$, $p < .001$, respectively). A post hoc comparison of teachers in mixed classrooms with those in open and traditional classrooms in the amount

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mean (Keppel, 1973) was used in calculations of the F ratios for these comparisons.

of these behaviors accorded to low achievers reveals that the amount of expectations and opportunities is significantly lower in the mixed classrooms than in the other two types of classrooms ($F = 6.84$, $p < .01$). A similar comparison concerning high achievers shows that the amount of high expectations, opportunities and choice accorded the highs in mixed classrooms is not greater than in open or traditional classrooms ($F = 1.36$, n.s.).

Trichotomization X Sex of Target interactions were significant on Scales 1, 2, and 4. (Means, standard deviations and F values are shown in Table 3.)

Planned comparisons indicated that teachers in traditional classrooms were perceived as giving more help to females than males ($F = 10.56$, $p < .01$), while no difference in the amount of help given to males and females was perceived in open or mixed classrooms ($Fs = 1.97$ and 1.11, respectively).

Similar comparisons showed that teachers in traditional classrooms were seen as emphasizing work and rules more for females than for males ($F = 4.89$, $p < .05$), while teachers in mixed classrooms were seen as making this emphasis more for males than females ($F = 4.43$, $p < .05$). No difference in emphasis was perceived in open classrooms ($F = 2.77$, n.s.).

Likewise, in traditional classrooms, students perceived teachers as having higher expectations for females than males ($F = 4.10$, $p < .05$), while in mixed classrooms, students perceived teachers as having higher expectations for males ($F = 7.29$, $p < .01$). The difference in favor of males in open classrooms was nonsignificant ($F < 1$).

Three-way interactions were not significant on any of the scales.

Grouping teachers according to the combined criteria of administrators' nomination and scores on the OETQ does appear to yield a somewhat fuller picture of some of the differences between open and traditional teachers in their treatment of high and low achievers than that provided by nominations alone. Some lack of clarity may have been removed by separating into the mixed group those teachers who were neither clearly open nor traditional, since these teachers were found to be more similar to the open teachers on some scales and more similar to the traditional teachers on other scales.

Classroom and Teacher Treatment. Since the hypothesis concerning students perceiving less differential teacher treatment in classrooms with more open structure was not confirmed, additional analyses of classroom as an independent variable were carried out.

Two-factor ANOVAs investigating effects of Classroom and Ability of Target showed a significant main effect for classroom on each of the scales: Scale 1, F (15,202) = 3.98, $p < .001$; Scale 2, F (15,202) = 5.45, $p < .001$; Scale 3, F (15,202) = 3.16, $p < .001$; Scale 4, F (15,202) = 3.10, $p < .001$. This finding indicates that, as perceived by students in different classrooms, teachers differed in their use of the four types of behaviors reflected in the four TTI scales.

Significant Classroom X Ability of Target interaction effects were found for Scale 1, F (15,202) = 3.14, $p < .001$; Scale 2, F (15,202) = 2.78, $p < .001$, and Scale 4, F (15,202) = 2.60, $p < .001$. Teachers were perceived by students as differing in their treatment of high and low achievers in the areas of helping, negative feedback and teacher direction, and high expectations and opportunities. The interaction for Scale 3 was nonsignificant: (F (15,202) = .22). Means and standard deviations are shown in Table 5.

As can be seen in Table 5, five teachers were perceived as giving more help to high achievers, nine teachers as giving more help to low achievers, and three teachers as showing no difference in the amount of help given to highs and lows. The fact that some teachers were perceived as giving more help to high achievers and others as giving more help to low achievers may account for the marginal main effect of this scale in the three-factor ANOVAs for Nomination, Ability of Target, and Sex of Target, and for Trichotomization, Ability of Target, and Sex of Target.

All teachers were perceived as giving more negative feedback to and direction for low achievers. And all teachers were perceived as showing behaviors indicating greater expectations, opportunities and choice in interacting with high achievers.

To ascertain whether the teacher differences may reflect more than differences in the sex of the target forms given to the classrooms, classes given male and female target forms were paired within schools and each pair was treated as one class. Three-factor ANOVAs were then carried out (Class pairs X Ability of Target X Sex of Target). Again, significant main effects for classroom were found on each of the scales, indicating that differences exist in student perceptions of teacher treatment beyond any that may be associated with the sex of target. (Scale 1, F (7,202) = 4.75, $p < .001$; Scale 2, F (7,202) = 6.45, $p < .001$; Scale 3, F (7,202) = 2.79, $p < .01$; Scale 4, F (7,202) = 3.31, $p < .01$.)

Strength of the Effects. To explore the strength of the effects noted above, Ability of Target and Sex of Target were used as predictors of each of the TTI Scales in three separate analyses using either Nomination, Trichotomization, or Classroom as a third predictor variable. The proportions of variance (eta^2) accounted for by target (form) variables and classroom variables in these analyses are shown in Table 6. Ability of Target accounted for a greater proportion of variance than did Sex of Target or Classroom variables. Among the classroom variables, Classroom itself accounted for a larger proportion of variance (.11-.19) than did Nomination (.0-.04) or Trichotomization (.0-.04).

Table 7 shows the percentage of variance (multiple R^2) accounted for by each predictor equation. The greatest percentage of variance in each of the four TTI Scales was accounted for by the combined effects of Classroom, Ability of Target, and Sex of Target -- ranging from 20% for Scale 1 to 42% for Scale 4. The combined effects of Nomination, Ability of Target, and Sex of Target ranged from 7% to 31%, and the combined effects of Trichotomization, Ability of Target, and Sex of Target ranged from 6% to 31%. Thus, a substantial gap exists between the amount of variance explained by classroom and the amount explained by classroom structure.

The analyses conducted thus far have concentrated on a systematic investigation of the openness of classroom structure and the relationship of classroom structure to teaching behaviors postulated as affecting achievement expectations. Multiple regression analyses are now being carried out to explore two sets of factors in addition to classroom structure: (1) aggregate achievement factors, e.g. mean and variance of achievement within the classroom and (2) school and school structure units, e.g. grade combination. These analyses are being conducted in an attempt to explain classroom differences in students' perceptions of overall use of the behaviors investigated as well as in students' perceptions of the differential use of these behaviors with high and low achievers.

Amount of Differentiation and Classroom Structure

As noted in the Classroom X Ability of Target analyses, all of the teachers showed differentiation in their interactions with high and low achieving students; however, teachers varied in the amount of differentiation shown. In addition, teachers varied in the areas (scales) in which they

showed differentiation. To explore further the characteristics of teachers who demonstrate high and low amounts of differentiation, the difference between mean TTI scores for high achieving targets and mean TTI scores for the low achieving targets on each scale was found within each classroom. Classrooms were then ranked on the amount of differentiation shown on each TTI scale and these rankings were used as an index of classroom differentiation.

Classroom structure. Pearson correlations were calculated between teachers ranks on each TTI scale and their OETQ Importance and Extent Implemented scores. No significant correlations were found between the amount of differentiation on any of the TTI scale and either the Importance or the Extent Implemented scores, suggesting that the importance of strategies reflecting classroom openness and the implementation of these strategies as measured by the OETQ are unrelated to the amount of differentiation perceived by students.

Amount of Differentiation and Interview Data. Although no relationship was found between the amount of differentiation and classroom structure as measured by the OETQ, preliminary inspection of the interviews reveals some interesting consistencies between the amount of differentiation as measured by the TTI and children's open-ended responses to the interview questions. In the four classrooms ranked lowest on amount of differentiation over all scales, students made no mention of the teacher's utilizing any means of public display of how well they are doing. In contrast, in the classes with the most differentiation, students reported that teachers publicly announced their scores and grades and pointed out the good and poor students. Similarly, students in high differentiating classrooms frequently referred to the level of the reading and math groups they were in (suggesting a hierarchy of ability levels), in contrast to the omission of this aspect by those in low differentiating classrooms.

In addition, one class where students reported feeling that they can become smart - "People who used to not be smart, they're smart now" - is one of the low differentiating classes. However, of two classes where students reported that "most everybody is smart in our class, except they don't try" and "everybody's smart enough, some just don't wanna work," one is a low differentiating classroom and one is a high differentiating classroom.

The interview data are currently being systematically coded to explore other factors that may be related to differential teacher treatment as well as to obtain a clearer picture of the broader consequences of being smart or not so smart in school.

Discussion

The results of the current analyses indicate that students perceive all teachers to differentiate in the treatment of high and low achievers. In general, teachers were perceived as giving more directions and negative feedback to low achievers than high achievers as well as emphasizing work and rules more for low than for high achievers. In contrast, teachers were perceived as showing greater expectations, opportunities, and choice for high than low achievers. Teachers appear to vary, however, in the amount of differentiation shown to high and low achievers on these three scales, with the difference in amount shown to high and low achievers being relatively large for some teachers and minimal for other teachers. On the supportive help scale, some teachers were perceived as giving more help to low achievers; some were seen as giving more help to high achievers; and for some, no difference in the amount of help given to highs and lows was perceived.

The hypothesis that students in open classrooms would perceive less differential treatment was not supported by the analysis of classrooms nominated as open and traditional. It should be noted, however, that while the correlation was significant between nomination as open or traditional and teachers' beliefs in the importance of strategies on the Open Education Teacher Questionnaire, the correlation--although positive--was not significant between nomination and the extent to which teachers reported actually implementing these strategies. In addition, the extent to which teachers reported implementing these strategies was not significantly correlated with their judgments of importance. The lack of convergence of these measures may have contributed to the lack of clear-cut results between classrooms nominated as open and traditional.

Use of the more complex criteria for categorizing classroom structure which utilized nomination plus the Importance and Extent Implemented teacher questionnaire scores yielded a finer distinction between open and traditional classrooms by removing those classrooms which were neither clearly open nor clearly traditional. Yet even utilizing these criteria, the hypothesis

regarding differences in amount of differential treatment in classrooms with different types of structure was not supported. Whether students were in open or traditional classrooms did not generally seem to influence their perceptions of differential treatment. In comparing the treatment of high and low achievers within the three types of classrooms, only on the supportive help scale were teachers in open classrooms seen as showing no differential treatment while teachers in traditional classrooms were seen as showing greater help to low achievers. On the other two scales where significant interactions between trichotomization of classroom structure and ability of target were found, teachers in all three types of classrooms were perceived as giving more directions and negative feedback to low achievers and greater expectations, opportunities and choice to high achievers. However, it appears that it is in the mixed classrooms that students perceive the greatest differentiation in the amount of these strategies.

When the strength of the relationship is considered, classroom emerges as explaining a relatively large proportion of the variability--in contrast to that accounted for by classroom structure (as determined by either nomination or trichotomization). Investigation is underway to determine the relative contributions of aggregate achievement and school factors both to the overall amount of perceived teacher treatment on the four scales and to the amount of treatment perceived to be differentially accorded to high and low achievers on these four scales.

These findings reported here point to the need for better ways of investigating classroom structure and/or those aspects of classroom structure which may be related to perceived differential treatment. The concept of classroom openness has been a difficult one to operationalize (Marshall, 1972; 1974; Walberg & Thomas, 1975). However, it may be that particular subdimensions of classroom structure, such as grouping or evaluation and feedback procedures (Marshall, 1976), are more strongly related to differential teacher treatment than is the global dimension of openness of classroom structure. An indepth study of high and low differentiating classrooms may be able to shed light on particular subdimensions which may be important in the development of achievement expectations.

Among the questions which remain to be answered, the following seem particularly cogent: If differentiation is perceived in all classrooms, what are the unintended side effects which may affect the development of achievement expectations and learning processes? What are the factors that offset differentiation so that children see that everyone can learn, that "everybody's smart in my classroom"? Since many teachers strive to meet the needs of individual children, under what circumstances may differentiation not only be appropriate but beneficial for learning?

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Table 1

Mean Scores, Standard Deviations, and Ranges on OETQ

	Importance		Extent Implemented	
	Nomination		Nomination	
	Open	Traditional	Open	Traditional
Mean	157.88	143.13	142.00	135.50
S.D.	13.38	8.58	6.50	9.68
Range	139-182	129-155	131-155	123-159

Table 2

Means, Standard Deviations, and F Values for Effects of Classroom Structure

	Nomination			Trichotomization			
	Open N=8	Traditional N=8	F(1,226)	Open N=5	Mixed N=5	Traditional N=6	F(2,222)
Scale 1 - Supportive Help							
Mean	2.74[a]	2.53	8.93**	2.74	2.70	2.50	5.30**
s.d.	.47	.56		.48	.48	.57	
Scale 2 - Negative Feedback and Teacher Direction							
Mean	2.83	2.63	10.99***	2.86	2.68	2.70	3.23*
s.d.	.55	.54		.48	.63	.52	
Scale 3 - Work and Rule Orientation							
Mean	2.16	2.10	1.44	2.19	2.10	2.12	0.88
s.d.	.43	.49		.43	.43	.51	
Scale 4 - High Expectations, Opportunity and Choice							
Mean	2.44	2.37	1.27	2.41	2.44	2.36	0.91
s.d.	.56	.56		.49	.63	.53	

* $p < .05$

** $p < .01$

*** $p < .001$

[a]A rating of frequency of teacher interaction where 1 = Always and 4 = Never.

Table 3

Means, Standard Deviations, and F Values for Type of Classroom Structure and Sex of Target

Sex of Target		Nomination			Trichotomization			
		Open	Traditional	F(1,226)	Open	Traditional	Mixed	F(2,222)
Scale 1 - Supportive Help								
Male	Mean	2.78 [a]	2.60	.09	2.83	2.68	2.66	5.47**
	s.d.	.39	55		.35	.55	.46	
Female	Mean	2.69	2.47		2.67	2.31	2.78	
	s.d.	.55	.57		.55	.54	.50	
Scale 2 - Negative Feedback and Teacher Direction								
Male	Mean	2.84	2.61	.38	2.95	2.74	2.63	2.13
	s.d.	.49	.53		.31	.46	.61	
Female	Mean	2.83	2.65		2.79	2.66	2.77	
	s.d.	.63	.55		.58	.57	.65	
Scale 3 - Work and Rule Orientation								
Male	Mean	2.09	2.16	6.98**	2.16	2.22	2.03	5.53**
	s.d.	.42	.54		.39	.53	.46	
Female	Mean	2.61	2.04		2.21	2.01	2.23	
	s.d.	.43	.42		.47	.47	.34	
Scale 4 - High Expectations, Opportunities, Choice								
Male	Mean	2.38	2.39	2.87	2.37	2.46	2.33	6.27**
	s.d.	.48	.56		.41	.53	.55	
Female	Mean	2.52	2.35		2.45	2.25	2.61	
	s.d.	.64	.57		.55	.53	.70	

* $p < .05$

** $p < .01$

*** $p < .001$

[a] A rating of grequency of teacher interaction where 1 = Always and 4 = Never.

Table 4

Means, Standard Deviations and F Values for Trichotomization of Classroom Structure and Ability of Target

Ability of Target		Trichotomization			
		Open	Mixed	Traditional	F(2,222)
		Scale 1 - Supportive Help			
Low	Mean	2.67[a]	2.74	2.36	3.32*
	s.d.	.46	.49	.53	
High	Mean	2.82	2.67	2.64	
	s.d.	.48	.48	.58	
		Scale 2 - Negative Feedback and Teacher Direction			
Low	Mean	2.69	2.28	2.52	5.76**
	s.d.	.53	.49	.52	
High	Mean	3.03	3.06	2.88	
	s.d.	.34	.50	.44	
		Scale 3 - Work and Rule Orientation			
Low	Mean	2.08	1.84	1.94	2.03
	s.d.	.44	.39	.40	
High	Mean	2.30	2.35	2.30	
	s.d.	.40	.30	.55	
		Scale 4 - High Expectations, Opportunity and Choice			
Low	Mean	2.69	2.87	2.58	4.92**
	s.d.	.44	.48	.49	
High	Mean	2.14	2.04	2.15	
	s.d.	.37	.46	.49	

* $p < .05$
** $p < .01$
*** $p < .001$

[a]A rating of frequency of teacher interaction where 1 = Always and 4 = Never.

Table 5

Mean Scores for High and Low Achieving Target Students within each Classroom

Target		Classroom 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Scale 1 - Supportive Help																	
Low	M	2.88[a]	2.73	2.50	2.74	2.23	2.76	1.40	2.26	2.58	3.09	2.72	2.83	2.30	2.88	2.05	2.38
	sd	.48	.45	.27	.50	.88	.33	.38	.58	.30	.22	.38	.32	.40	.34	.27	.35
High	M	2.57	2.75	2.84	2.98	2.35	2.49	2.50	3.23	2.53	2.61	2.99	2.81	2.58	2.65	2.60	2.16
	sd	.60	.21	.23	.38	1.16	.29	.39	.51	.60	.49	.27	.29	.59	.37	.49	.39
Scale 2 - Negative Feedback and Teacher Direction																	
Low	M	2.39	2.73	2.90	2.39	1.58	2.28	1.65	2.60	2.68	2.23	2.89	2.83	2.64	2.40	1.98	2.68
	sd	.77	.29	.27	.56	.22	.17	.30	.48	.38	.22	.28	.45	.61	.28	.29	.35
High	M	3.34	2.95	3.04	3.33	2.83	2.99	2.74	3.10	2.92	3.01	3.06	3.10	2.96	2.43	2.33	2.80
	sd	.27	.78	.37	.25	.56	.32	.29	.50	.44	.44	.27	.24	.50	.21	.60	.35
Scale 3 - Work and Rule Orientation																	
Low	M	2.19	1.86	2.67	1.72	1.92	1.79	1.67	2.35	2.09	1.90	2.10	1.99	1.89	1.62	1.58	1.77
	sd	.44	.48	.08	.30	.73	.33	.30	.37	.31	.19	.35	.36	.35	.29	.51	.39
High	M	2.49	1.96	2.53	2.42	2.25	2.22	2.25	2.60	2.28	2.28	2.34	2.22	2.40	2.19	2.30	1.77
	sd	.19	.18	.19	.34	.46	.36	.12	.76	.54	.16	.39	.47	.55	.17	.35	.37
Scale 4 - High Expectations, Opportunities, Choice																	
Low	M	3.28	2.36	2.70	2.61	3.32	2.78	3.36	2.73	2.50	3.08	2.63	2.60	2.22	3.07	2.64	2.09
	sd	.43	.18	.19	.48	.48	.30	.24	.20	.38	.21	.40	.39	.29	.20	.58	.33
High	M	2.05	2.18	2.07	2.06	1.98	2.15	2.27	2.24	2.15	2.10	2.12	2.26	2.03	2.27	1.77	2.02
	sd	.50	.26	.47	.46	.64	.52	.25	.75	.48	.49	.32	.29	.55	.27	.27	.24

[a]A rating of frequency of teacher interaction where 1 = Always and 4 = Never.

Table 6

Proportion of Variance Explained by Independent Variables (Eta^2)

	Scale 1	Scale 2	Scale 3	Scale 4
Form				
Ability of Target	.01	.22	.17	.30
Sex of Target	.01	.00	.00	.00
Classroom Analysis				
Nomination	.04	.04	.00	.00
Trichotomi-zation	.04	.02	.00	.00
Classroom	.18	.19	.16	.11

Table 7

Combined Effects of Predictors in Separate Regression Equations

Multiple R^2

Variables in the Regression Equation	Scale 1	Scale 2	Scale 3	Scale 4
Ability of Target X Sex of Target	.03	.22	.17	.31
Nomination X Ability of Target X Sex of Target	.06	.25	.18	.31
Trichotomiaation X Ability of Target X Sex of Target	.07	.24	.18	.31
Classroom X Ability of Target X Sex of Target	.20	.41	.32	.42